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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/053,553  | 01/24/2002  | Jong-Hyuk Lee        | P56537              | 5620             |
| 7590  | 01/13/2004  |                      | EXAMINER            |                  |
| Robert E. Bushnell<br>Suite 300<br>1522 K Street, N.W.<br>Washington, DC 20005-1202 |             |                      | HARPER, HOLLY R     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2879                |                  |

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/053,553             | LEE ET AL.          |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Holly R. Harper        | 2879                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is FINAL.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-33 is/are pending in the application.  
 4a) Of the above claim(s) 32 and 33 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-17 is/are rejected.  
 7) Claim(s) 18-31 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 1/24/02 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.  
 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
 a) The translation of the foreign language provisional application has been received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-31, drawn to a filter, classified in class 313, subclass 466.
  - II. Claims 32-33, drawn to a method of manufacturing, classified in class 427, subclass 164.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the filter layer could be dried at 200 degrees Celsius instead of at room temperature.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Robert Bushnell on 5/9/2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-31. Affirmation of this election must be made by applicant in replying to this Office action. Claims 32-33 are

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanak (USPN 4,157,215).

In regard to claim 1, the Hanak reference discloses a filter layer made of nano-sized metal particles distributed in a medium possibly consisting of an oxide (Column 6, Lines 40-67). The medium is made of particles. The metal particles are said to be between 10 and 40 Angstroms, which is between 1 and 4 nanometers (Column 6, Lines 54-56). It is an inherent property of the display device disclosed by Hanak that a surface plasma resonance phenomenon will occur and absorb light at predetermined wavelengths.

In regard to claim 2, the Hanak reference discloses that the metal is selected from a group including transitional metals (Column 6, Lines 59-64).

In regard to claim 3, the Hanak reference discloses that the metal is Ti, Zr, Ag, Pt, Ni, Cr or W (Column 6, Lines 59-64).

In regard to claim 4, the Hanak reference discloses that the medium is either SiO<sub>2</sub> Al<sub>2</sub>O<sub>3</sub>, or TiO<sub>2</sub> (Column 6, Lines 63-67).

In regard to claim 6, the Hanak reference discloses that the metal particles are in a range of 10 to 40 Angstroms, which is 1 to 4 nanometers (Column 6, Lines 54-56).

In regard to claim 7, the Hanak reference discloses a filter layer made of nano-sized metal particles distributed in a medium possibly consisting of an oxide (Column 6, Lines 40-67). The Hanak reference discloses a display with a filter layer comprising nano-sized metal particles and an oxide medium (Column 6, Lines 40-67).

The Examiner notes that the claim limitation of “dispersing an oxide in water to form an oxide sol; adding a metal salt, a reducing agent, and a dispersing agent to an organic solvent to prepare a metal colloid solution; mixing the oxide sol with the metal colloid solution“ and “drying the filter layer at room temperature” is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

In regard to claim 8, the Examiner notes that the claim limitation of “controlling an absorption intensity and absorption peak wavelength of light by adjusting at least one factor selected from the group consisting of kinds, contents and size of meal particulates of the metal colloid solution, and at least one factor selected from the group consisting of kinds and contents

of oxide particles of the oxide, prior to the step of mixing the oxide sol with the metal colloid solution" is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

In regard to claim 9, the Hanak reference discloses a display with a filter layer comprising nano-sized metal particles and an oxide medium (Column 6, Lines 40-67). The oxide medium is made of particles. The metal particles are said to be between 10 and 40 Angstroms, which is between 1 and 4 nanometers (Column 6, Lines 54-56). It is an inherent property of the display device disclosed by Hanak that a surface plasma resonance phenomenon will occur and absorb light at predetermined wavelengths.

8. Claims 9 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Chigusa (EP 0 890 974 A1).

In regard to claim 9, the Chigusa reference discloses a display with a filter layer (Figure 1, Element 2) comprising nano-sized metal particles and an oxide (Page 3, Lines 2-5). The oxide will be made of particles. The metal particles are said to be between 50 and 200 nanometers (Page 3, Lines 35-37). It is an inherent property of the display device disclosed by Chigusa that a surface plasma resonance phenomenon will occur and absorb light at predetermined wavelengths.

In regard to claim 13, the Chigusa reference discloses a display with a filter layer on the outer panel (Figure 1, Elements 2 and 8) comprising nano-sized metal particles and an oxide

(Page 3, Lines 2-5). The oxide will be made of particles. The metal particles are said to be between 50 and 200 nanometers (Page 3, Lines 35-37). There is a phosphor layer on the inner surface of the face panel (Figure 1, Element 9). It is an inherent property of the display device disclosed by Chigusa that a surface plasma resonance phenomenon will occur and absorb light at predetermined wavelengths.

In regard to claim 14, the Chigusa reference discloses a filter layer with a plurality of kinds of metals (Page 3, Lines 25-27) and oxides (Page 3, Lines 54-56).

The recitation "to provide a plurality of differing selective absorption peaks for corresponding wavelengths of light" has not been given patentable weight because is considered an intended used recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

In regard to claim 15, the Chigusa reference discloses that the conductive anti-reflective film is composed of two or more layers with different indexes of refraction (Page 4, Lines 25-30).

In regard to claim 16, the Chigusa reference discloses a conductive film (Figure 3, Element 3) located between the outer surface (Figure 1, Element 8 and 2) and the filter layer (Figure 3, Element 4).

In regard to claim 17, the Chigusa reference discloses that the filter layer is an anti-reflection film (Page 3, Line 35).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanak (USPN 4,157,215).

The Hanak reference discloses all the limitations of claim 1 above. The Hanak reference discloses the claimed invention except for the filter layer being composed of an amount of metal particles in the range of .001 to .5 mole percent on a basis of the oxide particles. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to create a filter layer with the amount of metal particles being in the range of .001 to .5 mole percent on a basis of the oxide particles, since discovering an optimum value of a result variable is considered within the skills of the art.

***Double Patenting***

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 9-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, and 6 of U.S. Patent No. 6,479,928 B1.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

| <u>Application</u> | <u>USPN 6,479,928 B2</u> |
|--------------------|--------------------------|
| 9                  | 1,4                      |
| 10                 | 1,4                      |
| 11                 | 1,4,6                    |
| 12                 | 1                        |

In regard to claim 9, the instant application discloses a display with at least one filter layer comprising nano-sized metal particles and oxide particles. The '928 patent discloses a CRT with more than one filter layer comprising nano-sized metal particles in a dielectric solution. The dielectric matrix can be silica, titania, zirconia, and alumina. The dielectric matrix is made of particles. The '928 patent discloses that the filter will absorb light at predetermined wavelengths.

In regard to claim 10, the instant application discloses a CRT with at least one filter layer comprising nano-sized metal particles and oxide particles on the inner surface of the face panel and a phosphor layer on the filter layer. The '928 patent discloses a CRT with more than one

filter layer comprising nano-sized metal particles in a dielectric solution formed on an inner surface of the face panel and a phosphor layer formed on the filter layer. The dielectric matrix can be silica, titania, zirconia, and alumina. The dielectric matrix is made of particles. The '928 patent discloses that the filter will absorb light at predetermined wavelengths.

In regard to claim 11, the instant application discloses a filter layer including a plurality of oxides and nano-sized metal particles. The '928 patent discloses at least one dielectric selected from silica, titania, zirconia, and alumina. The '928 patent also discloses that the filter layer is made of more than two different metals so that the filter has more than two absorption peaks at more than two different wavelengths.

In regard to claim 12, the instant application discloses that the filter layer includes a plurality of filter layers. The '928 patent discloses at least one filter which means that there can be a plurality of layers.

***Allowable Subject Matter***

13. Claims 18-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 18, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 18, and specifically comprising the limitation of a CRT with two filter layers made of nano-sized metal particles adhered to oxide particles, one on the inside of the display panel and one on the outside.

Regarding claims 19-22, claims 19-22 are allowable for the reasons given in claim 18 because of their dependency status from claim 18.

Regarding claim 23, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 23, and specifically comprising the limitation of a PDP with a filter layer comprising nano-sized metal particles adhered to oxide particles with a second dielectric layer disposed on the filter layer.

Regarding claims 24-25, claims 24-25 are allowable for the reasons given in claim 23 because of their dependency status from claim 23.

Regarding claim 26, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 26, and specifically comprising the limitation of a PDP with a third dielectric layer disposed on the filter layer comprising nano-sized metal particles adhered to oxide particles.

Regarding claims 27-28, claims 27-28 are allowable for the reasons given in claim 26 because of their dependency status from claim 26.

Regarding claim 29, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 29, and specifically comprising the limitation of a PDP with a protective layer disposed on the filter layer comprising nano-sized metal particles adhered to oxide particles.

Regarding claims 30-31, claims 30-31 are allowable for the reasons given in claim 29 because of their dependency status from claim 29.

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takamiya et al. (USPN 6,143,418) discloses a filter with multiple metal particles used on a CRT or PDP.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Harper whose telephone number is (703) 305-7908. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Holly Harper  
Patent Examiner  
Art Unit 2879



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PRIMARY EXAMINER